IN THE CLAIMS

Please amend the claims as follows:

1-18. (Canceled).

19. (Currently Amended) A method of a real time medical or cognitive monitoring device for analyzing synchronizations of electroencephalography of an individual using a set of sensors starting from cerebral electromagnetic analysis of the individual, comprising:

creating a database comprising:

acquisition and digitization of electrophysiological signals output from the sensors,

calculating a ~~degree of synchronization existing~~ correlation of phase variations between all pairs of sensors recorded in an assembly protocol, in frequency bands between 0 and 2000 Hz, to build up the database of classes each characterizing a reference state of cerebral electromagnetic activity of said individual;

statistical validation, by the real time medical or cognitive monitoring device, of a period analyzed in real time, which assigns the period to a class in the database; and

detecting, by the real time medical or cognitive monitoring device, a specific period with a determined degree of synchronization.

20. (Previously Presented) A method according to claim 19, further comprising an analysis associated with at least one type of electrophysiological signals among electrocardiograms, electrooculograms, electrodermograms, breathing signals.

21. (Previously Presented) A method according to claim 19, wherein a PLS method is used during the statistical validation, which estimates a phase difference between oscillations of signals from two electrodes.

22. (Previously Presented) A method according to claim 21, wherein a statistical level of PLS synchronization between two signals is evaluated using circular variance of the phase difference between the signals.

23. (Previously Presented). A method according to claim 21, wherein a statistical level of PLS synchronization between two signals is evaluated using normalized Shannon entropy of the phase difference between the signals.

24. (Previously Presented) Application of the method according to claim 19, to real time medical or cognitive monitoring.

25. (Previously Presented) Application of the method according to claim 19, for characterizing and differentiating physiological or pathological states.

26. (Previously Presented) Application of the method according to claim 25, for anticipating occurrence of epileptic seizures.

27. (Previously Presented) Application of the method according to claim 25, for diagnosis assistance in early stage of Parkinson's and Alzheimer's diseases.

28. (Previously Presented) Application of the method according to claim 25, for diagnosis assistance of schizophrenia and depression.

29. (Currently Amended) A real time medical or cognitive monitoring device starting from cerebral electromagnetic analysis of an individual, comprising:

means for acquiring and digitizing electrophysiological signals output from sensors;

means for calculating ~~synchronization~~ correlation of phase variations between all pairs of sensors recorded in an assembly process, in frequency bands between 0 and 2000 Hz, to build up a database of classes each characterizing a reference state of cerebral electromagnetic activity of said individual;

means for statistically validating a period analyzed in real time to assign the period to a class in the database;

means for detecting a cognitive period or a specific pathological period; and

means for sending an alert signal if applicable.

30. (Previously Presented) A device according to claim 29, further comprising means for performing an analysis associated with at least one type of electrophysiological signals among electrocardiograms, electrooculograms, electrodermograms, breathing signals.

31. (Previously Presented) A device according to claim 29, wherein a PLS method is used by the means for statistically validating, which estimates a phase difference between oscillations of signals from two electrodes.

32. (Previously Presented) A device according to claim 31, wherein a statistical level of a PLS synchronization between two signals is evaluated using circular variance of the phase difference between the signals.

33. (Previously Presented) A device according to claim 31, wherein a statistical level of PLS synchronization between two signals is evaluated using normalized Shannon entropy of the phase difference between the signals.

34. (Previously Presented) A device according to claim 29, further comprising:

circuits for acquisition of signals representing electrical activity of the brain;

a processor configured for acquisition and processing of the signals; and

an alert circuit for the patient or for his/her environment.

35. (Previously Presented) A device according to claim 29, which is a device that the individual can carry himself or herself.

36. (Previously Presented) A device according to claim 29, miniaturized to be implanted subcutaneously.